Docket No.: 110267-111 US1 PATENT/OFFICIAL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#15

In re Application of :

David W. Stebbings :

Serial No. 09/315,102 : Group Art Unit: 2131

Filed: 20 May 1999 : Examiner: Aravind K. Moorthy

For: MODULATION METHOD FOR MINIMIZING PIRATING AND/OR UNAUTHORIZED COPYING AND/OR UNAUTHORIZED ACCESS OF/TO DATA ON/FROM DATA MEDIA INCLUDING COMPACT DISCS AND DIGITAL VERSATILE DISCS

TRANSMITTAL OF FORMAL DRAWINGS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

At the time the above application was filed, informal drawings were presented with the application. Formal drawings for Figures 1-26 are submitted herewith.

Respectfully submitted,

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DISC	
PLAYING TIME:	74 MINUTES, 33 SECONDS MAXIMUM
ROTATION:	COUNTER-CLOCKWISE WHEN VIEWED FROM READOUT SURFACE
ROTATIONAL SPEED:	1.2-1.4 m/sec.
TRACK PITCH:	1.6 μm
DIAMETER:	120 mm
THICKNESS:	1.2 mm
CENTER HOLE DIAMETER:	15 mm
RECORDING AREA:	46 mm-117 mm
SIGNAL AREA:	50mm-116 mm
MATERIAL:	ANY TRANSPARENT MATERIAL WITH 1.55 REFRACTION INDEX, SUCH AS POLYCARBONATE
MINIMUM PIT LENGTH:	0.833 μm (1.2 m/sec.) to 0.972 mm (1.4 m/sec.)
MAXIMUM PIT LENGTH:	3.05 μm (1.2 m/sec.) to 3.56 mm (1.4 m/sec.)
PIT DEPTH:	APPROX. 0.11 μm
PIT WIDTH:	APPROX. 0.5 μm
OPTICAL SYSTEM	
STANDARD WAVELENGTH:	λ = 780 nm (7.800A)
FOCAL DEPTH:	± 2 μm
(λ/NA ≤ 1.75 μm, NA: NUMERICAL APERATURE)	
SIGNAL FORMAT	
NUMBER OF CHANNELS:	2 CHANNELS (4-CHANNEL RECORDING POSSIBLE)
QUANTIZATION:	16-BIT LINEAR QUANTIZATION
QUANTIZING TIMING:	CONCURRENT FOR ALL CHANNELS
SAMPLING FREQUENCY:	44.1 kHz
CHANNEL BIT RATE:	4.3218 Mb/sec.
DATA BIT RATE:	2.0338 Mb/sec.
DATA-TO-CHANNEL BIT RATIO:	8:17
ERROR CORRECTION CODE:	CIRC (WITH 25% REDUNDANCY)
MODULATION SYSTEM:	EFM

FIG. 1
PRIOR ART

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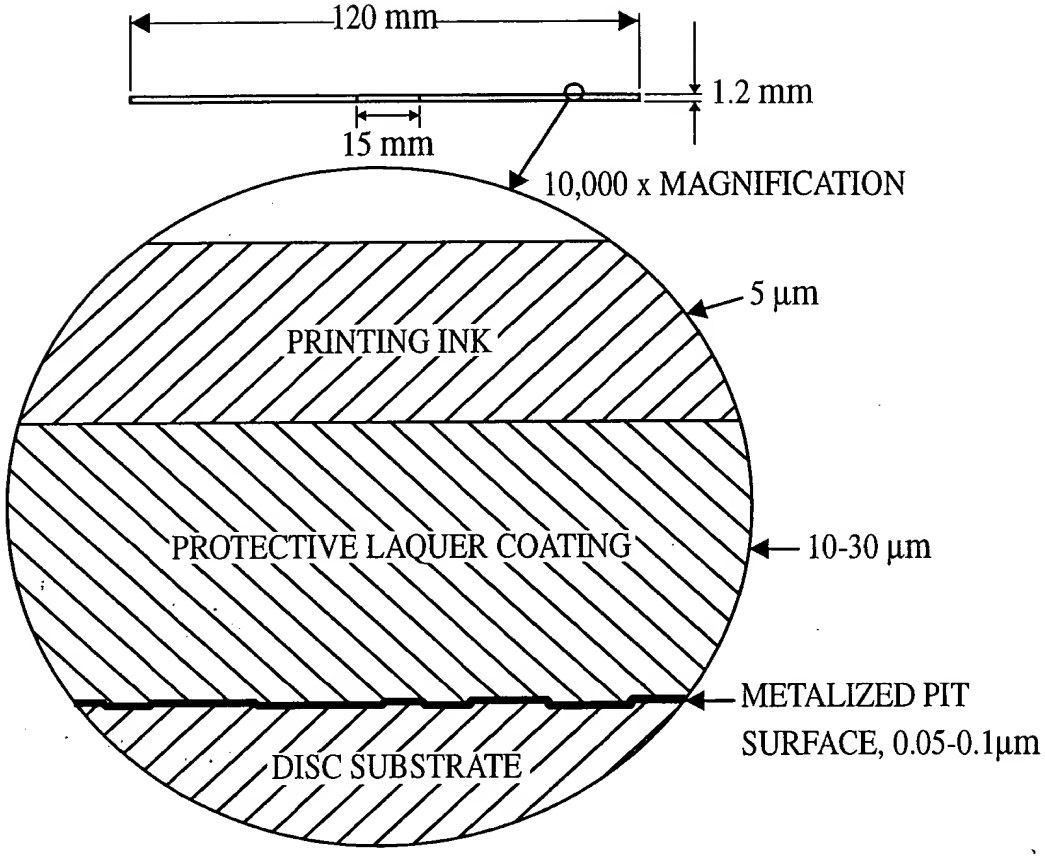

FIG. 2
PRIOR ART

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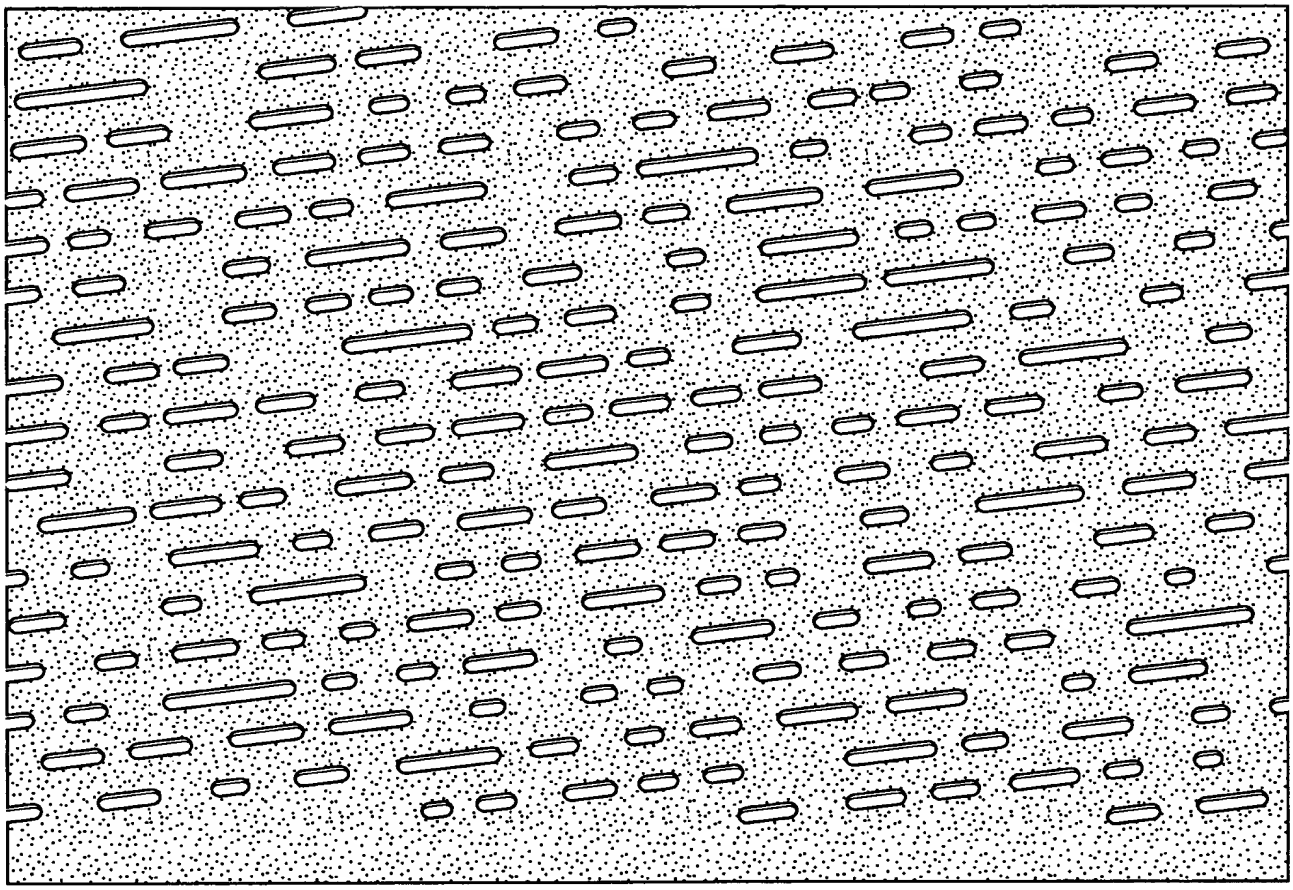

FIG. 3
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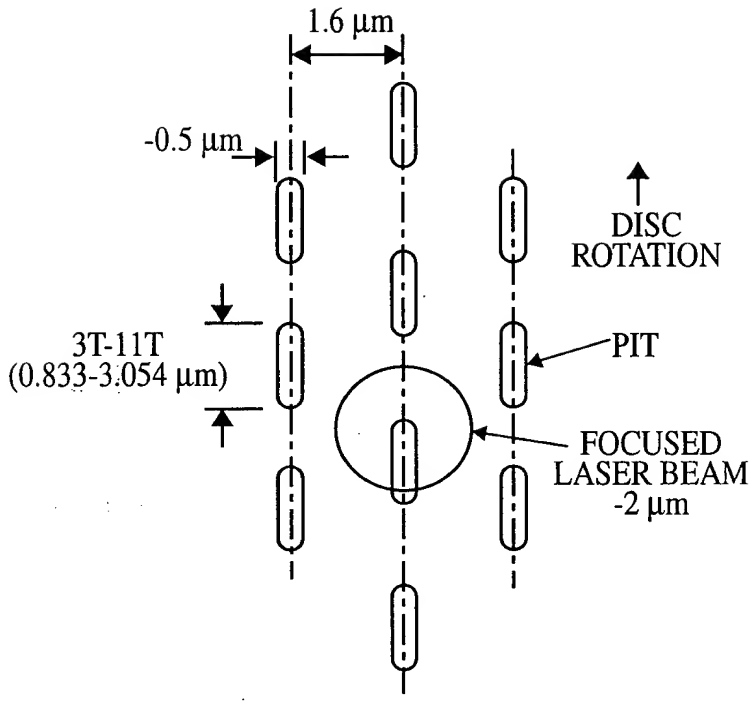

FIG. 4
PRIOR ART

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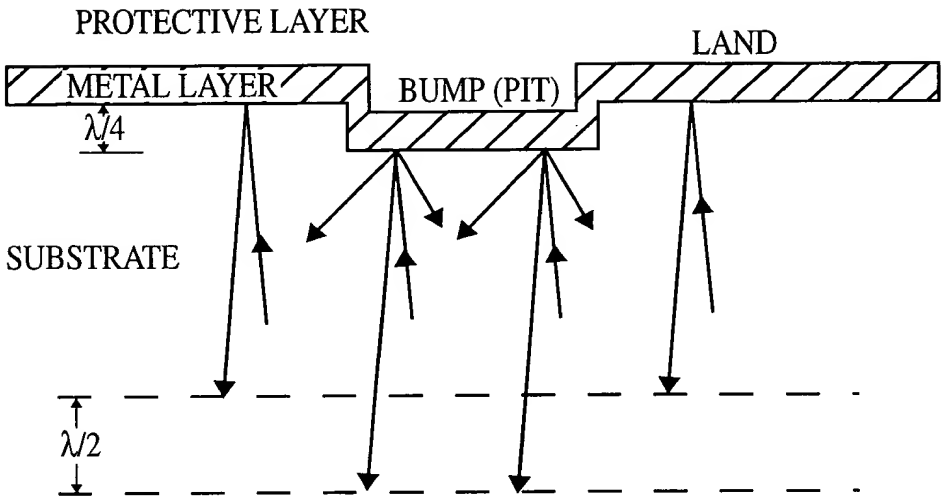

FIG. 5
PRIOR ART

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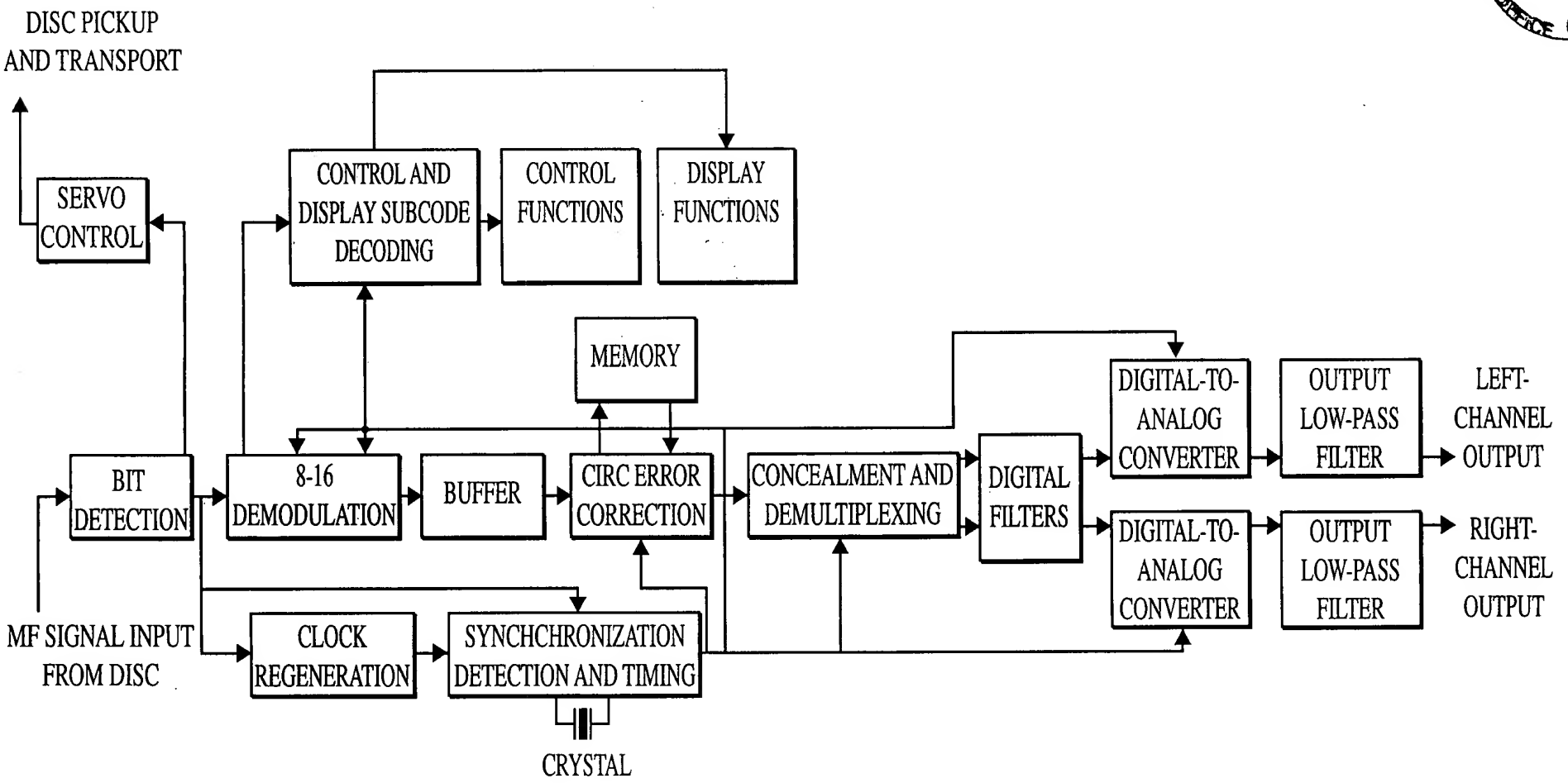

FIG. 6
PRIOR ART

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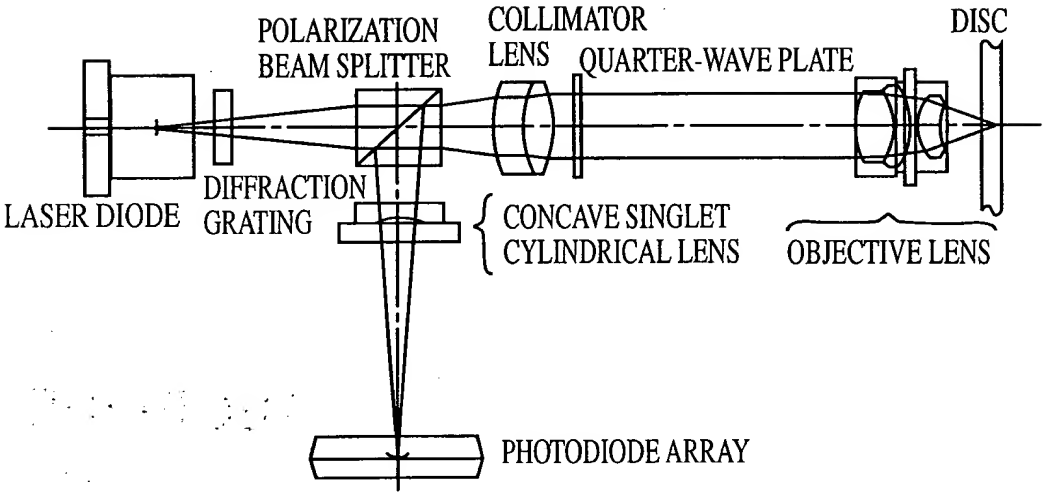

FIG. 7
PRIOR ART

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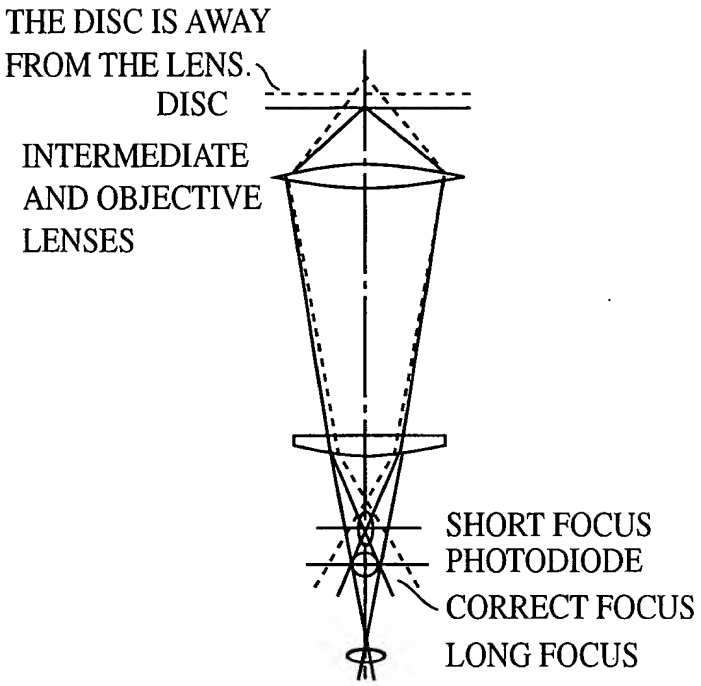

FIG. 8
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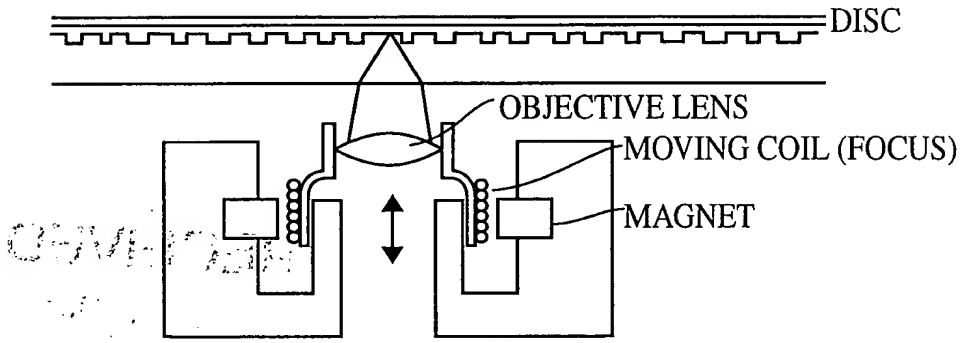

FIG. 9
PRIOR ART

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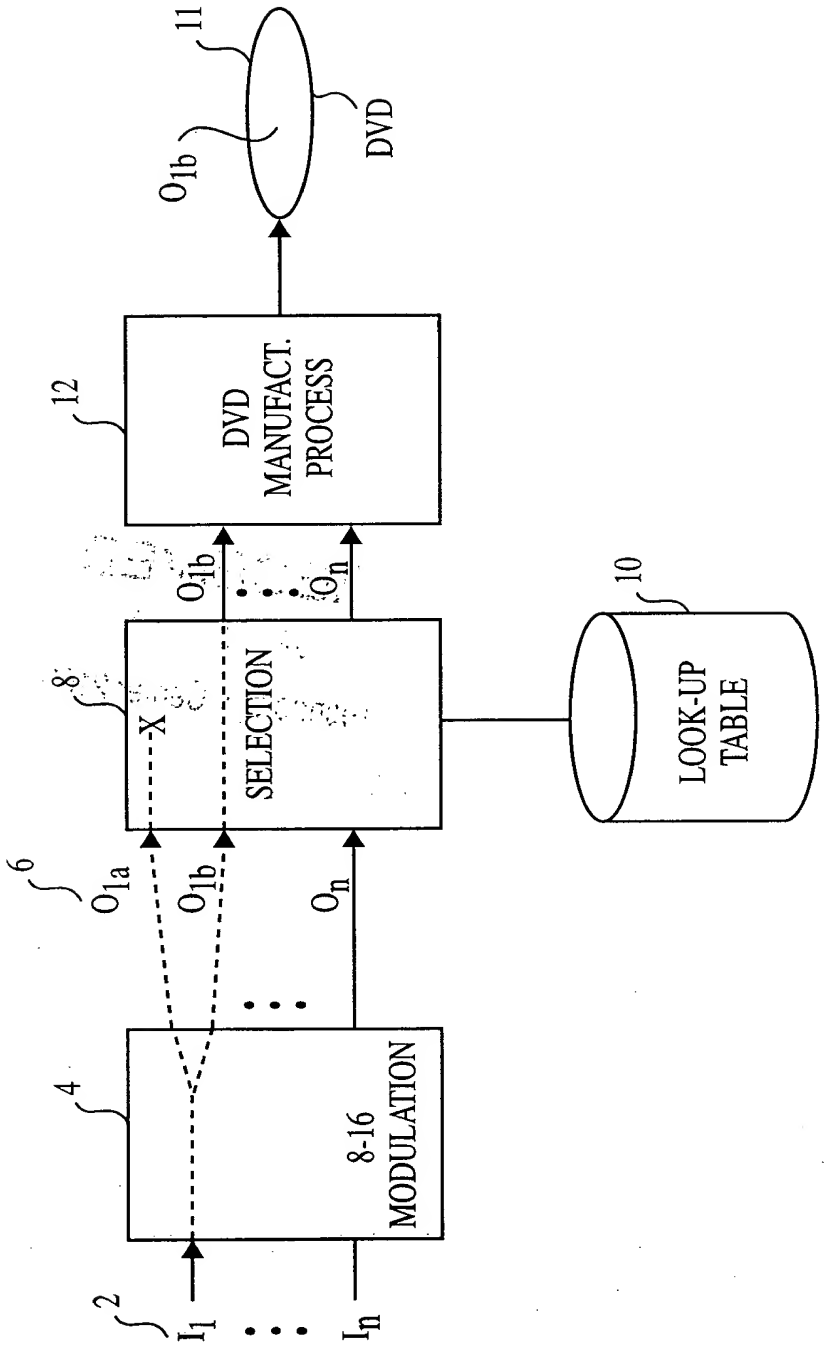

FIG. 10

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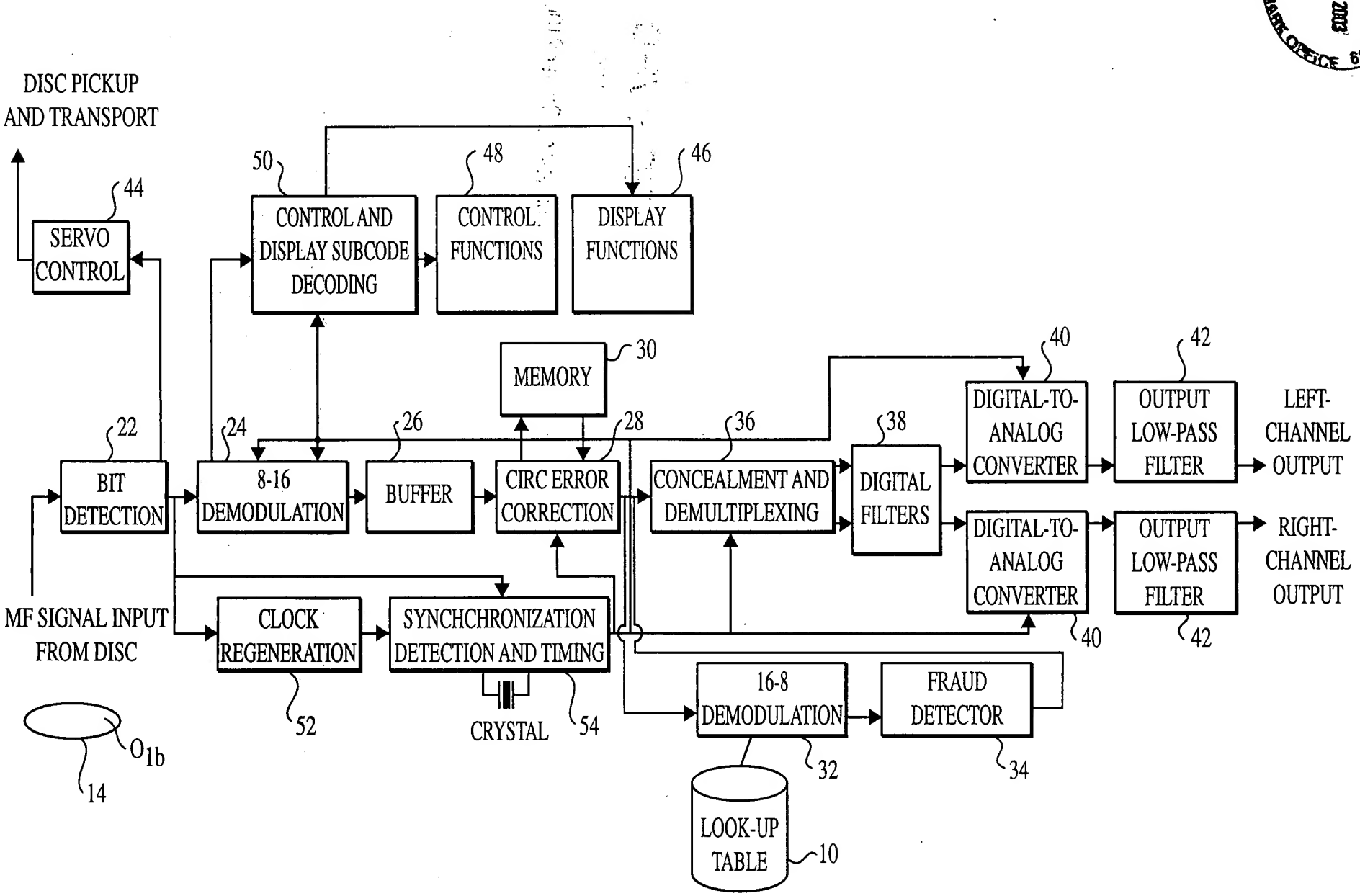

FIG. 11

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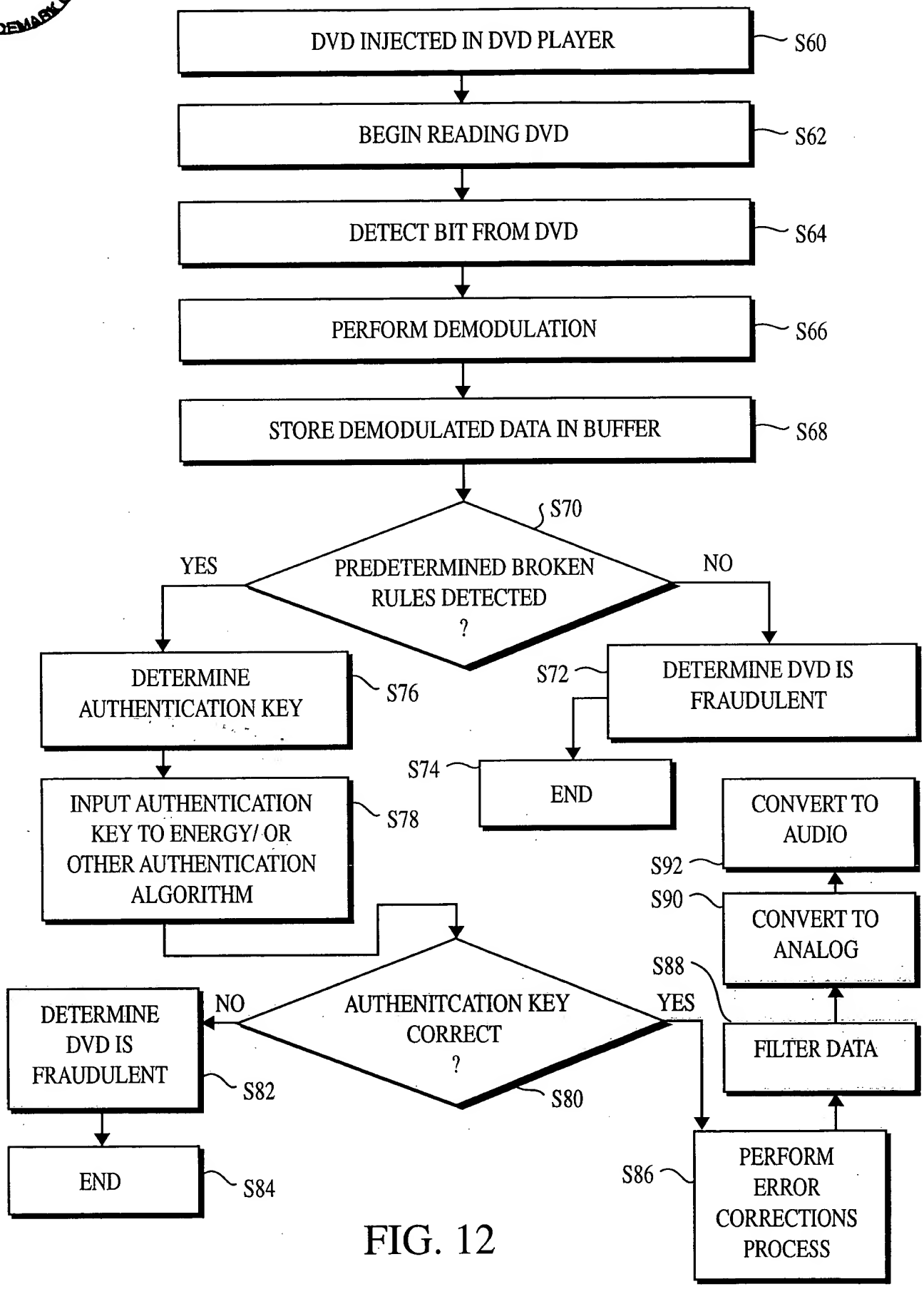

FIG. 12

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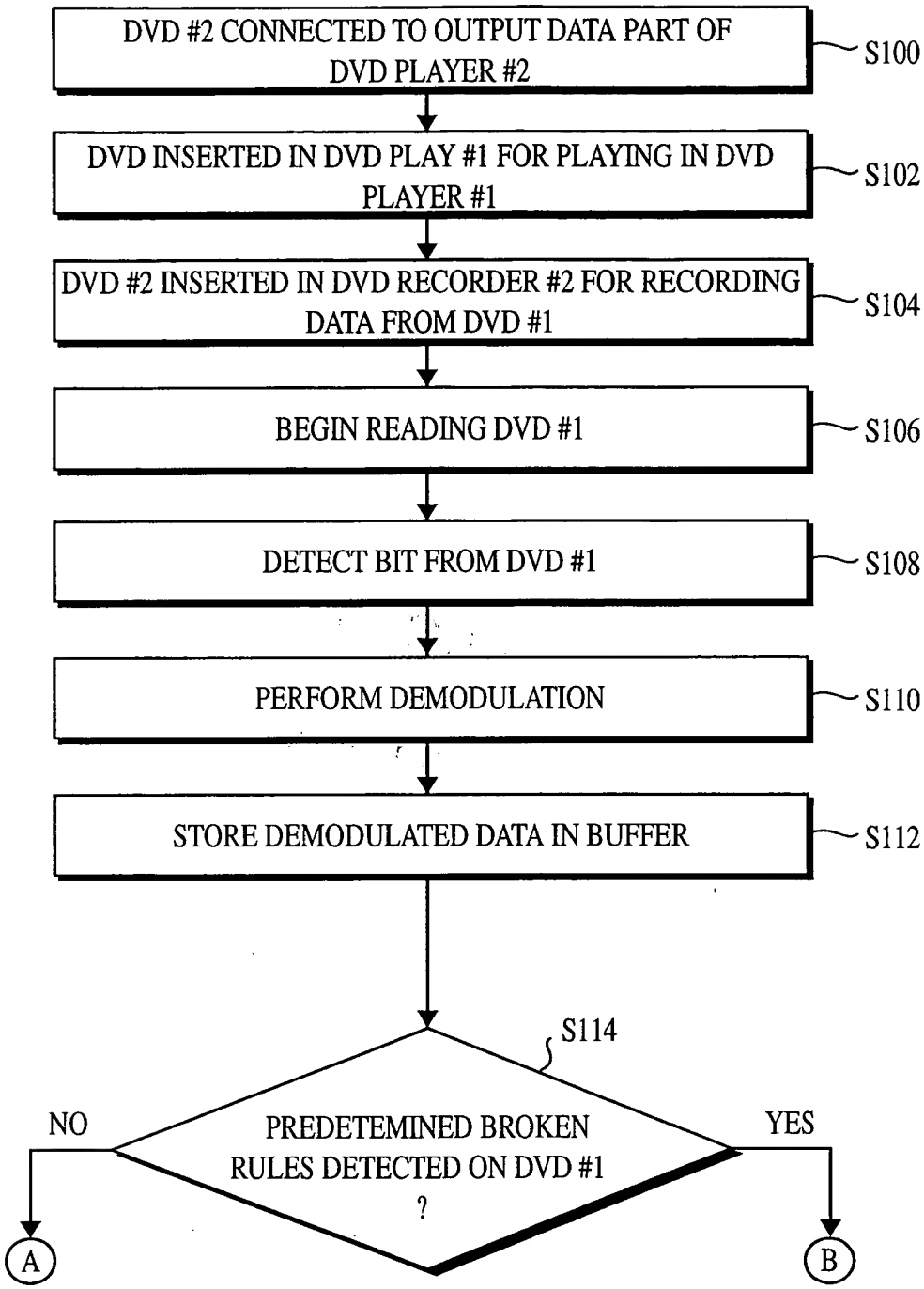

FIG. 13

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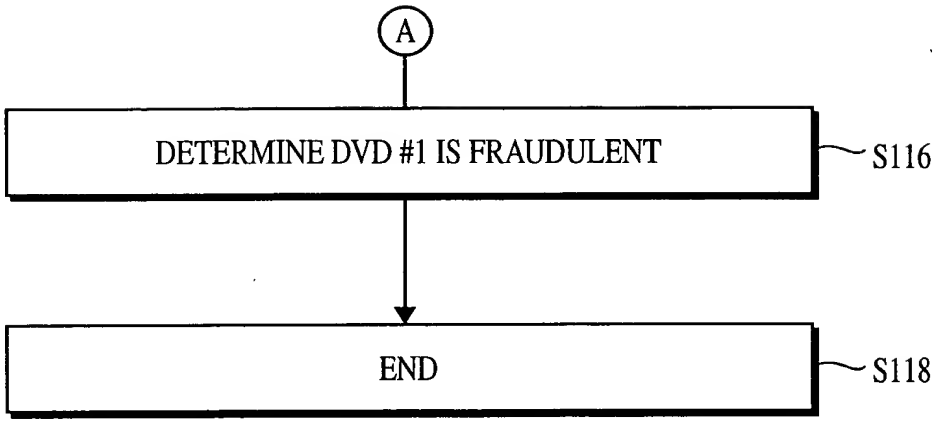

FIG. 14

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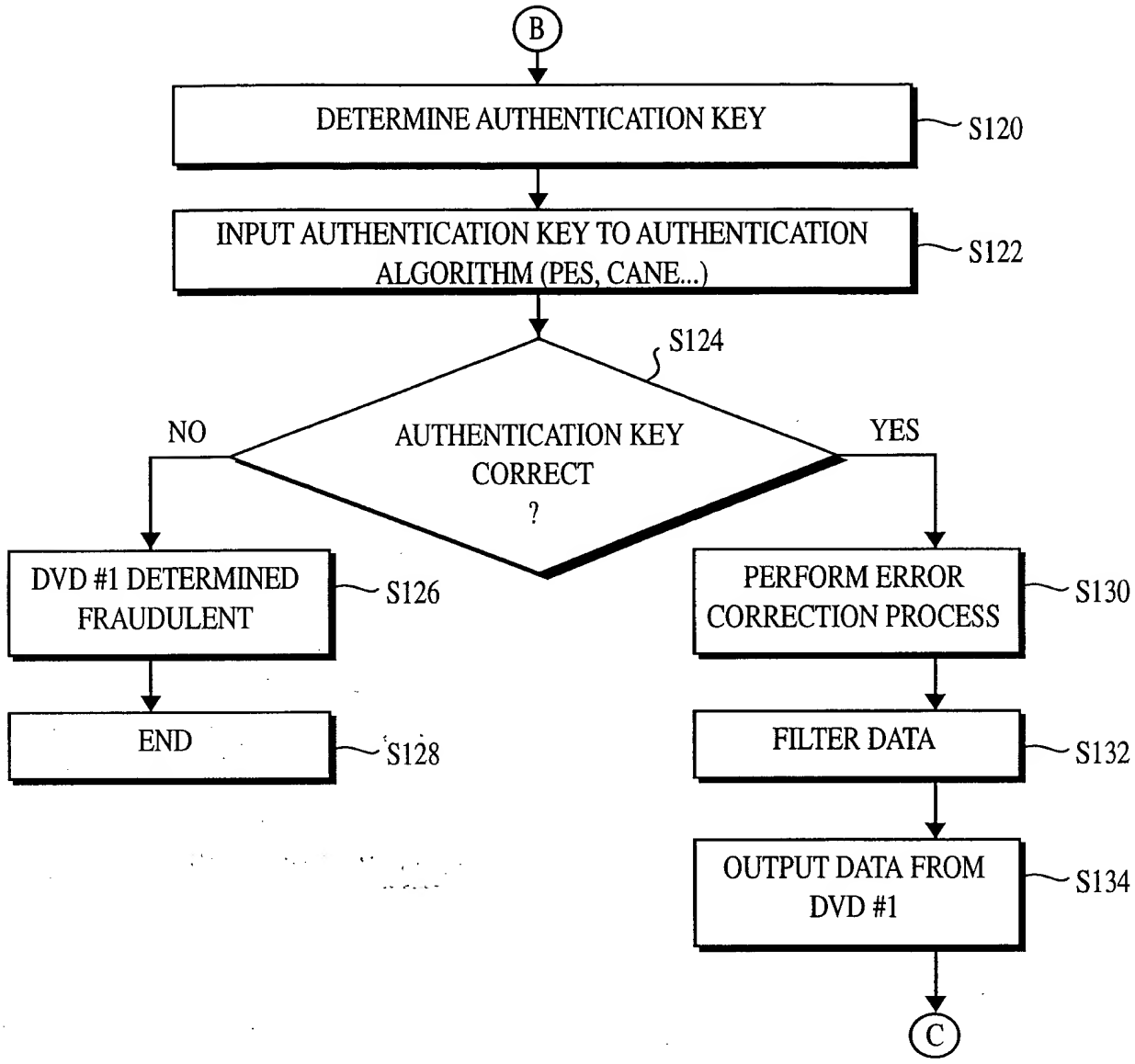

FIG. 15

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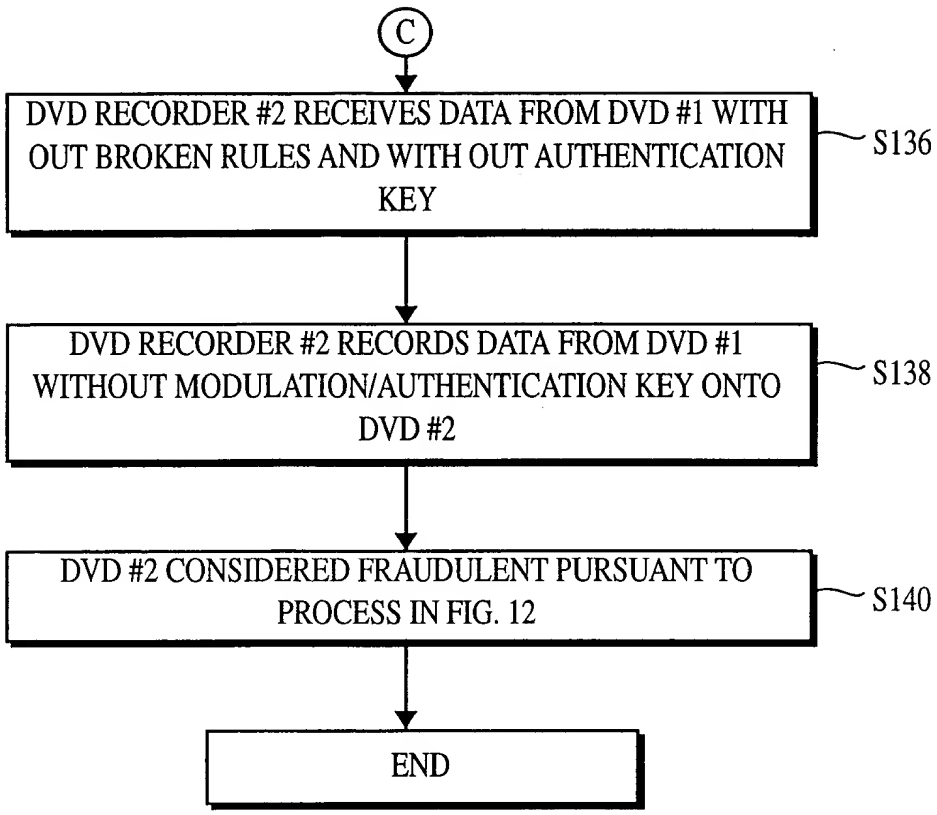

FIG. 16

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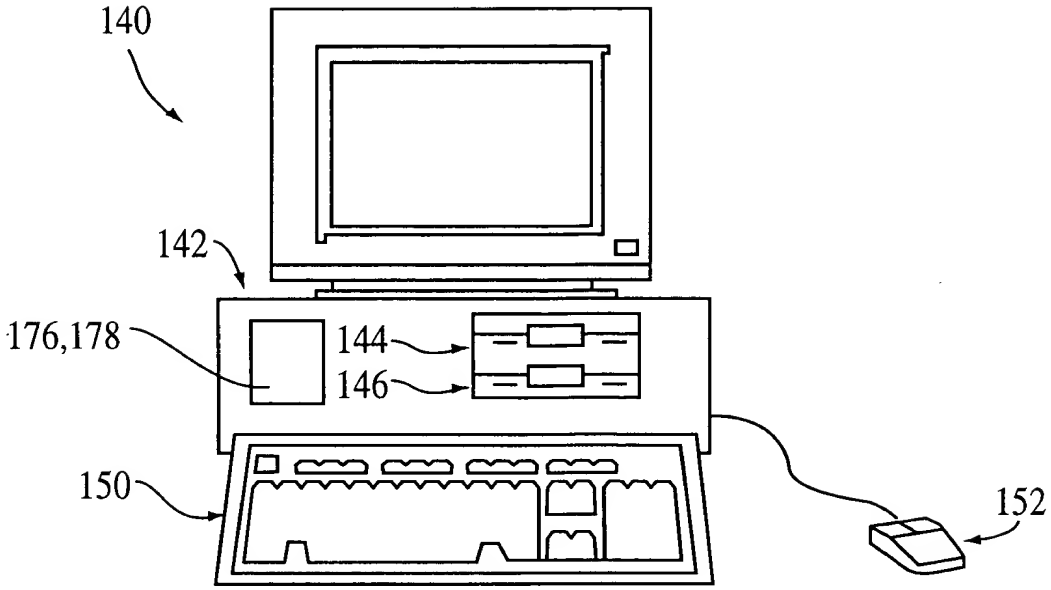

FIG. 17

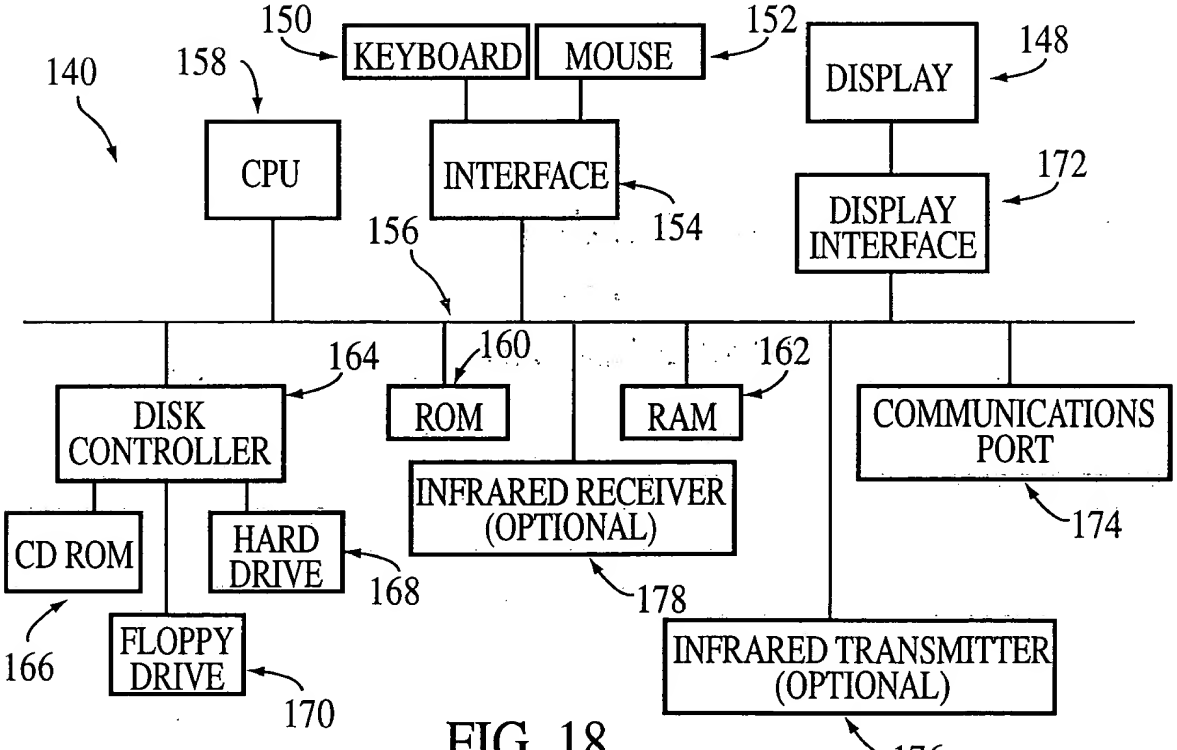

FIG. 18

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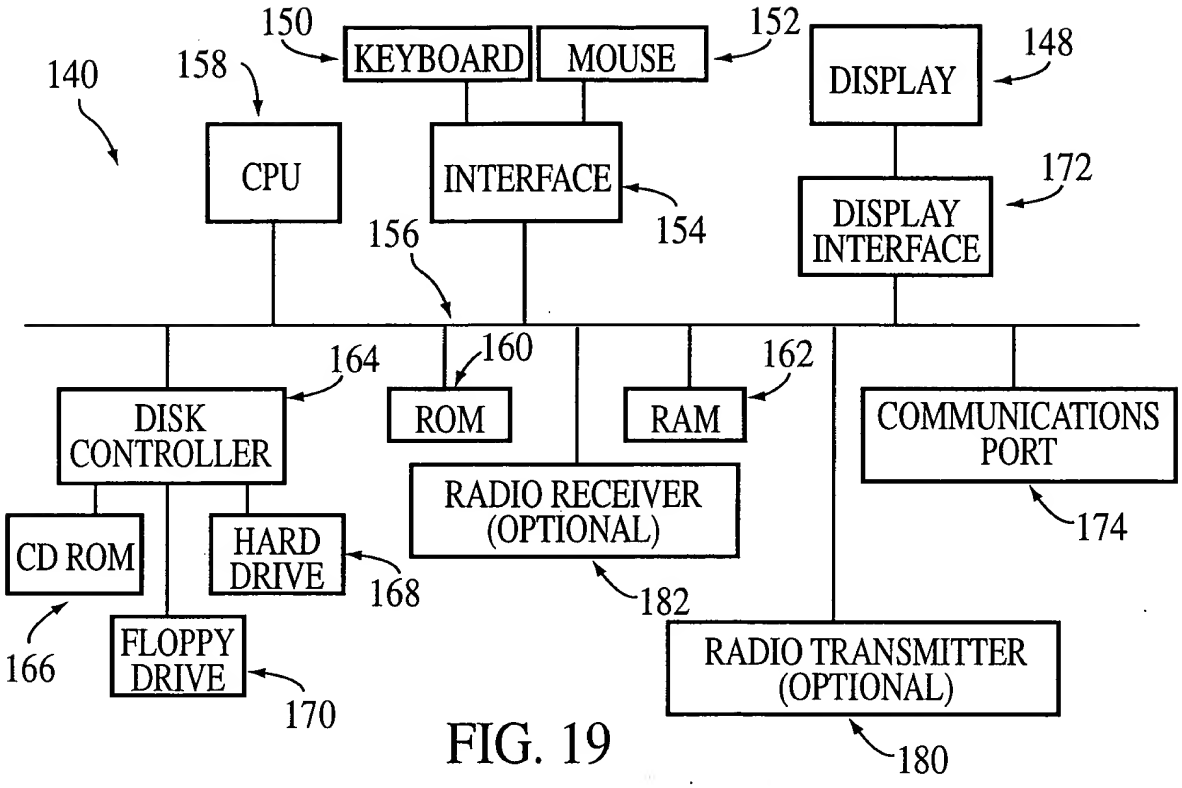

FIG. 19

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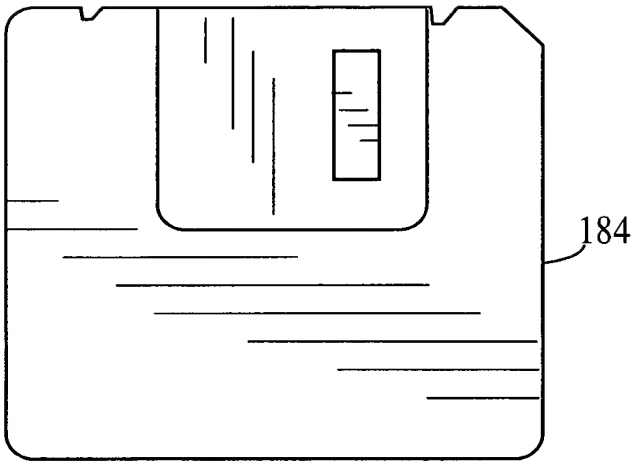

FIG. 20

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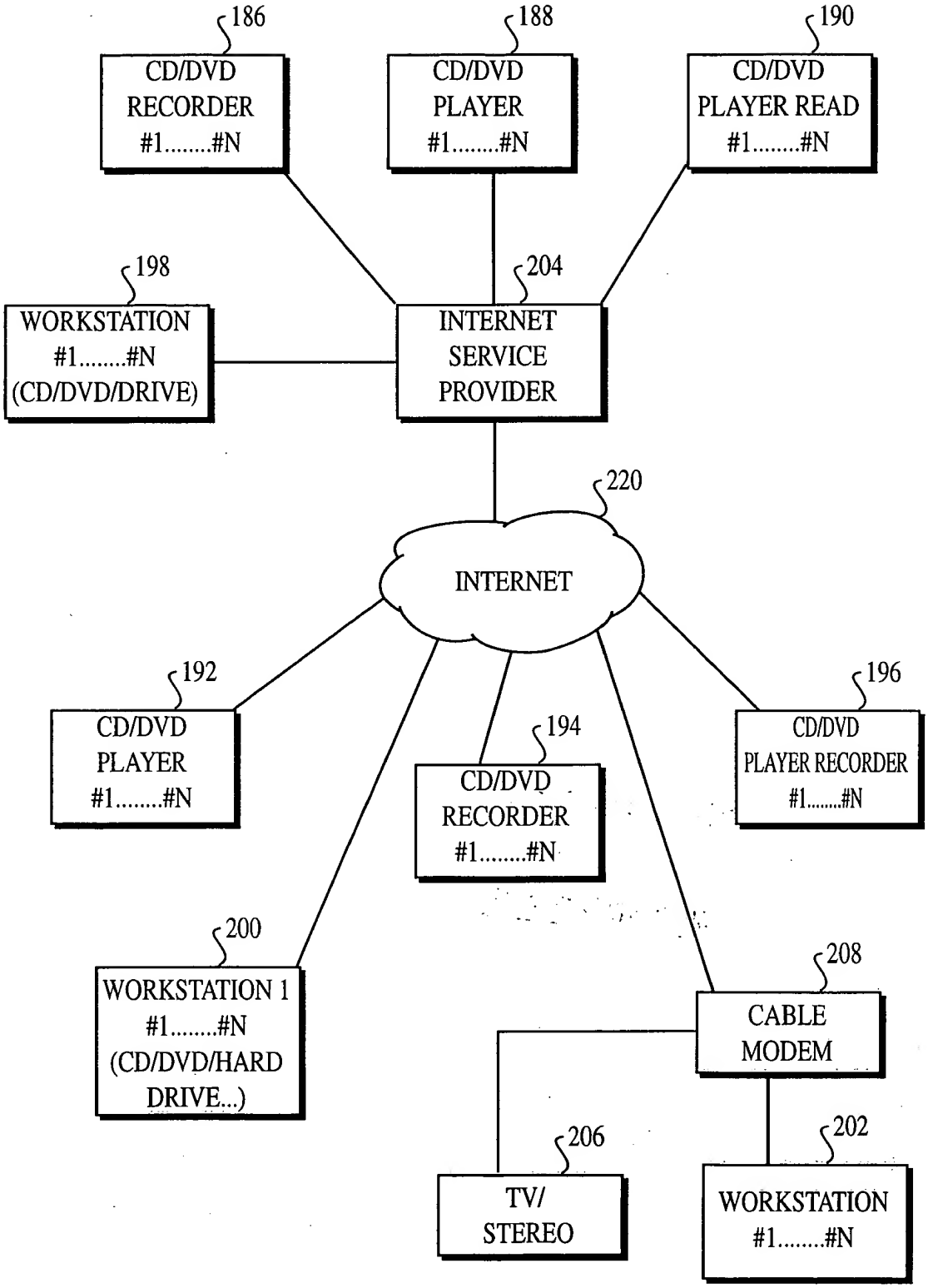

FIG. 21

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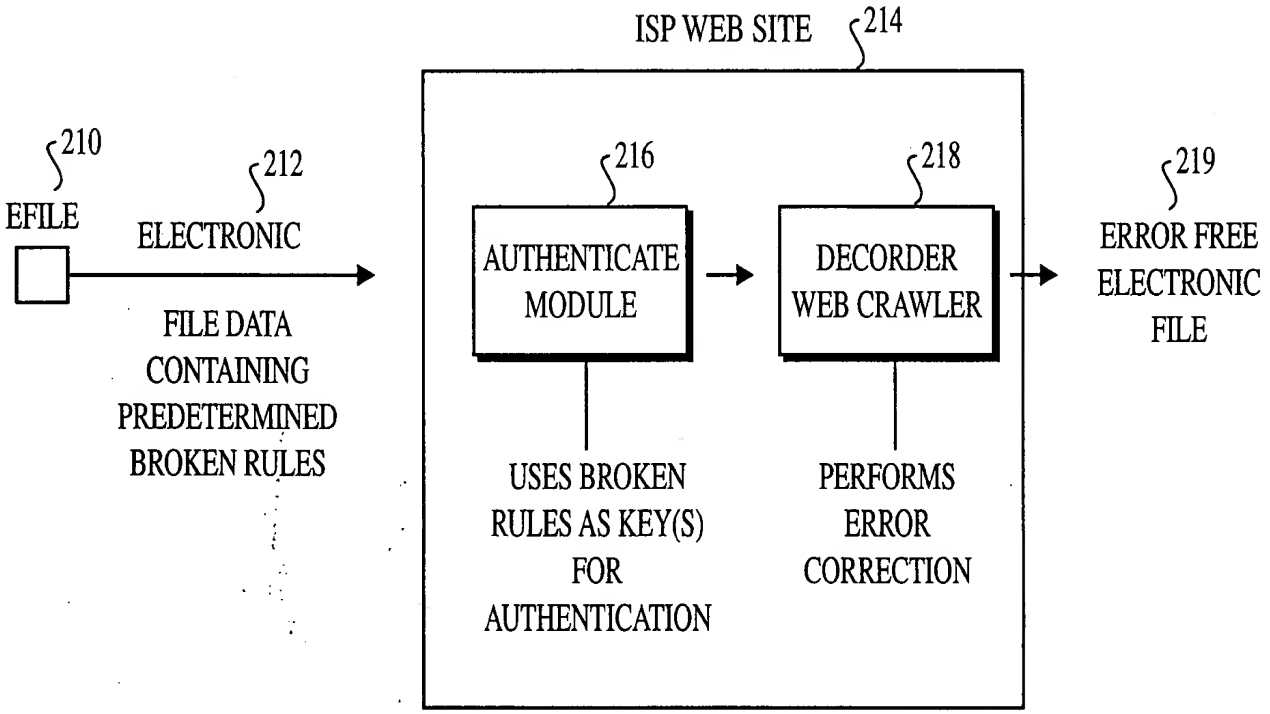

FIG. 22

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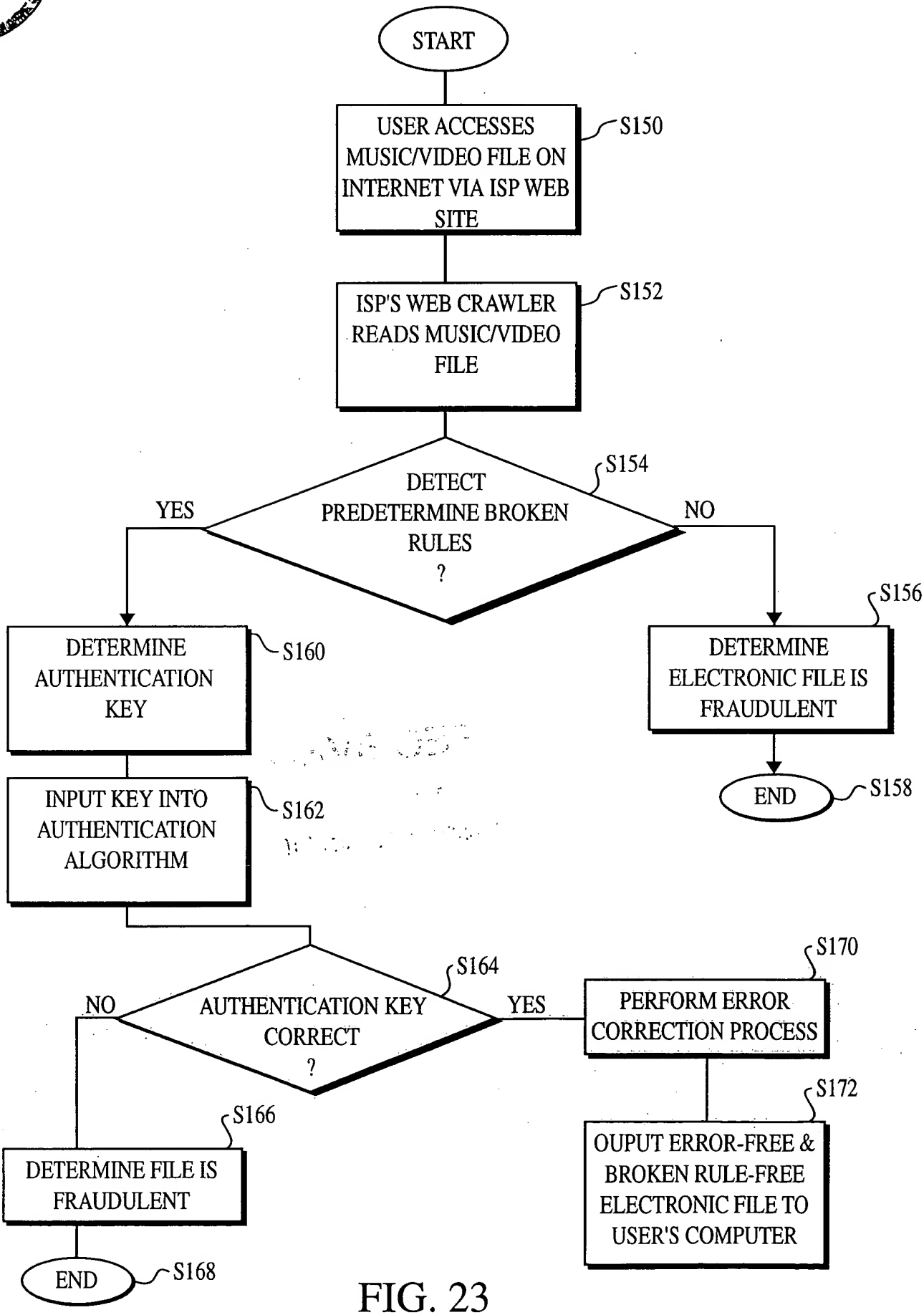

FIG. 23

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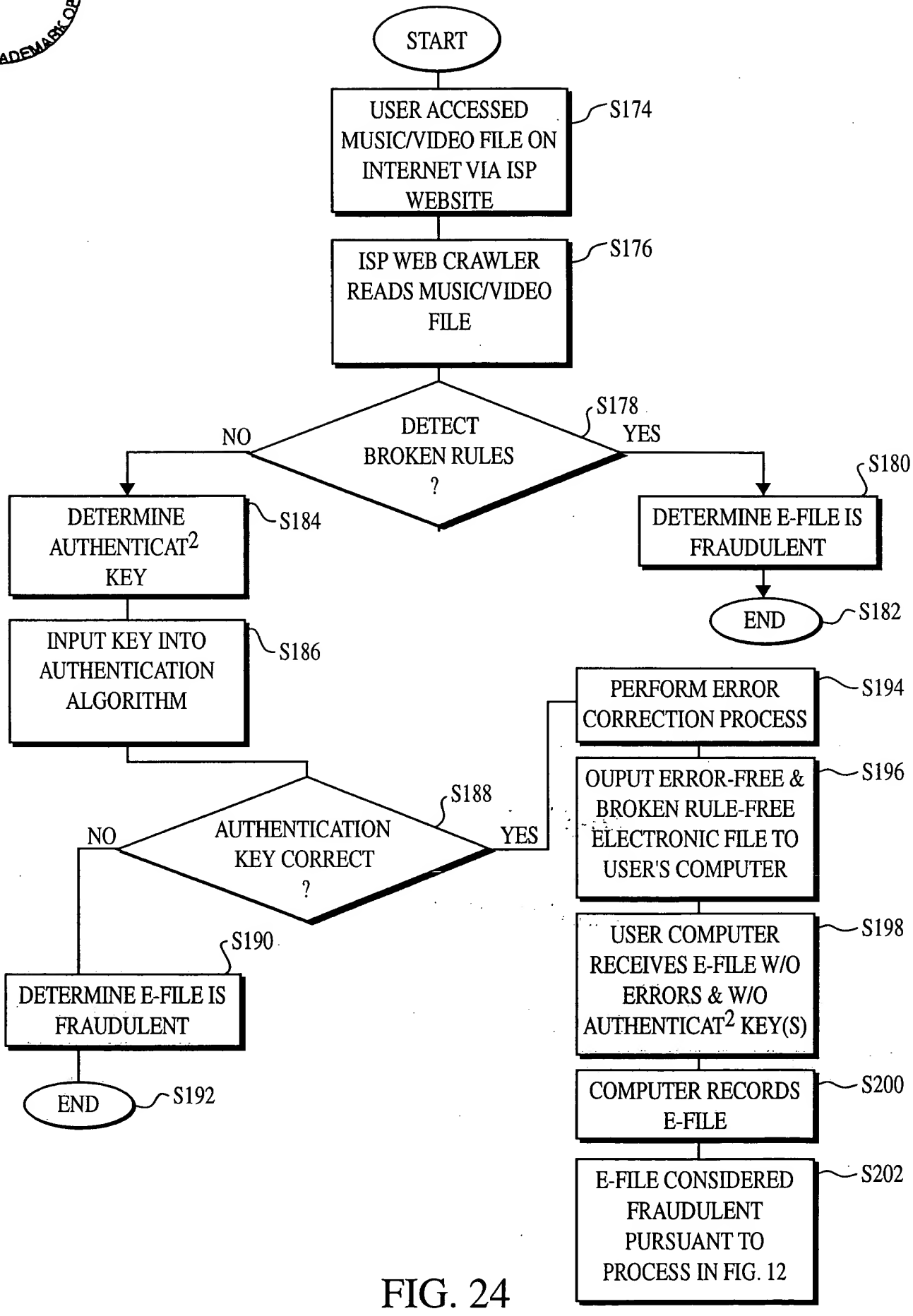

FIG. 24

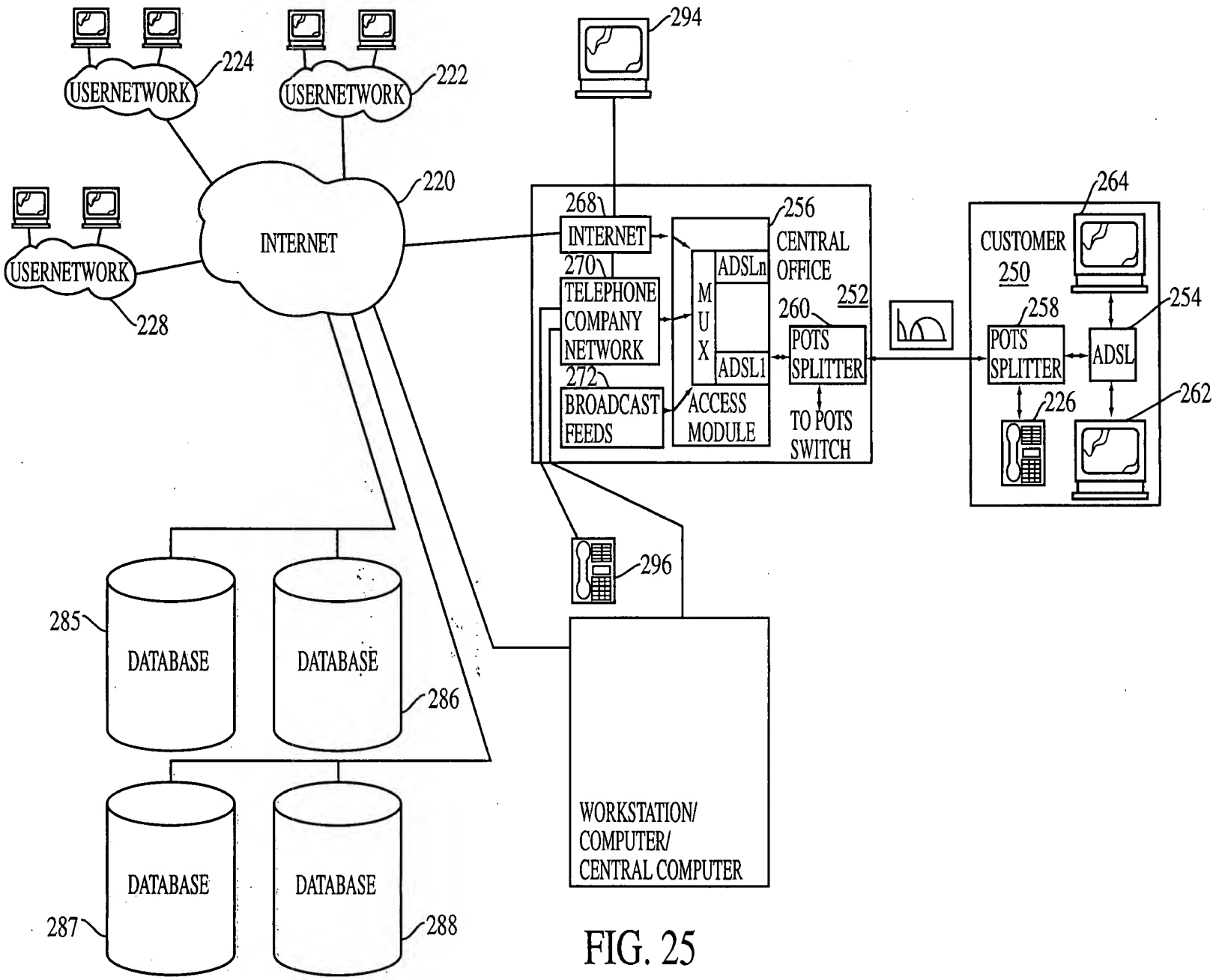
USERNETWORK
224
USERNETWORK
222
294
USERNETWORK
228
INTERNET
220
268
INTERNET
270
TELEPHONE COMPANY NETWORK
272
BROADCAST FEEDS
MUX
ADSLn
ADSL1
ACCESS MODULE
256
CENTRAL OFFICE
252
260
POTS SPLITTER
TO POTS SWITCH
264
CUSTOMER
250
258
POTS SPLITTER
254
ADSL
226
262
296
285
DATABASE
DATABASE
286
DATABASE
DATABASE
287
288
WORKSTATION/ COMPUTER/ CENTRAL COMPUTER

FIG. 25

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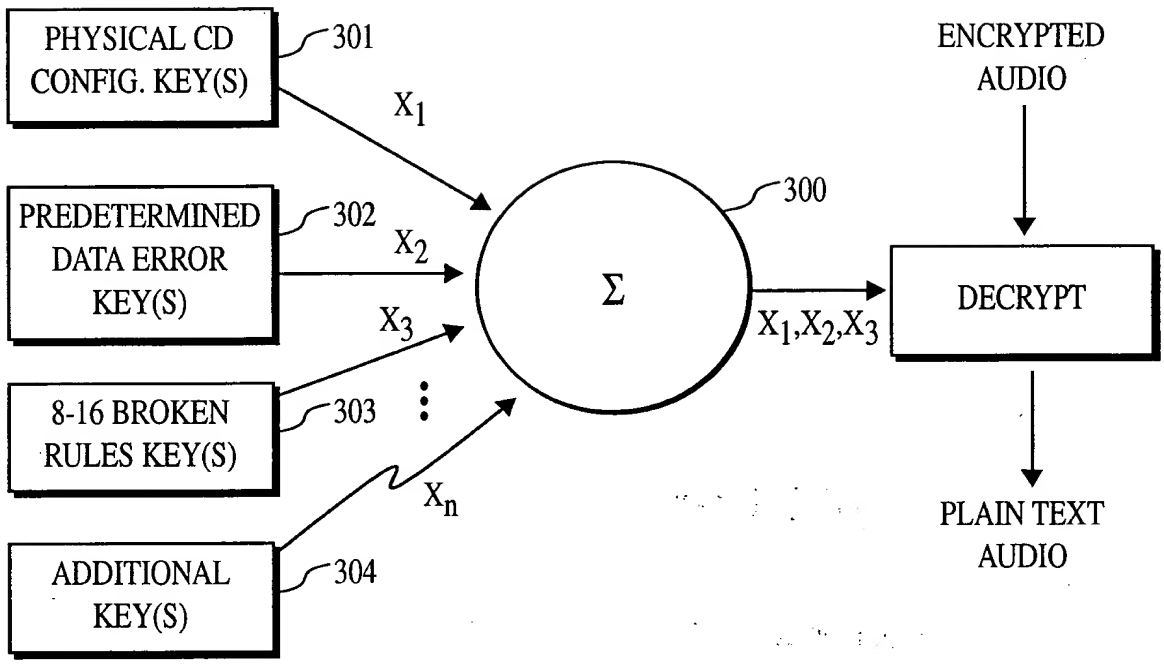

FIG. 26